

WHAT IS CLAIMED IS:

1. A method of optimizing point-to-point sessions,
comprising:

5 receiving a registration request from a mobile node,
the mobile node communicating with a current packet
controller function serviced by a packet data serving
node;

10 determining whether the registration request
comprises a previous access network identifier
identifying a previous packet controller function;

determining whether the mobile node is serviced by a
mobile Internet Protocol;

15 determining whether the mobile node communicated
with a previous packet controller function serviced by
the packet data serving node; and

deciding whether to negotiate a point-to-point
session for the mobile node in response to the
determinations.

20 2. The method of Claim 1, wherein the registration
request comprises a request for service at the packet
data serving node.

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3. The method of Claim 1, wherein deciding whether
to negotiate the point-to-point session for the mobile
node comprises:

negotiating the point-to-point session if the mobile
5 node did not communicate with a previous packet
controller function serviced by the packet data serving
node; and

updating the point-to-point session if the mobile
node communicated with a previous packet controller
10 function serviced by the packet data serving node.

4. The method of Claim 1, wherein deciding whether
to negotiate the point-to-point session for the mobile
node comprises:

15 determining whether there is a session context for
the mobile node;

negotiating the point-to-point session if there is
no session context; and

updating the point-to-point session if there is
20 session context.

5. The method of Claim 1, further comprising:
determining that the registration request comprises
the previous access network identifier;
identifying the previous packet controller function
5 from the previous access network identifier;
determining whether the previous packet controller
function is serviced by the packet data serving node;
negotiating the point-to-point session if the
previous packet controller function is not serviced by
10 the packet data serving node; and
updating the point-to-point session if the previous
packet controller function is serviced by the packet data
serving node.

15 6. The method of Claim 1, further comprising
generating a table comprising an entry associated with
the mobile node, the entry comprising a mobile node
identifier, a previous access network identifier, and a
current access network identifier.

20 7. The method of claim 6, further comprising
updating a tunnel connection operable to communicate a
plurality of data packets between the current packet
controller function and the packet data serving node by
25 updating the entry associated with the mobile node.

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8. The method of Claim 1, further comprising:

determining that the mobile node is serviced by a
simple Internet Protocol;

determining whether a first Internet Protocol
5 address associated with the mobile node is substantially
similar to a second Internet Protocol address associated
with the mobile node, the first Internet Protocol address
associated with a message received from the mobile node,
the second Internet Protocol address stored at the packet
10 data serving node;

negotiating the point-to-point session, if the first
Internet Protocol address is not substantially similar to
the second Internet Protocol address; and

updating the point-to-point session, if the first
15 Internet Protocol address is substantially similar to the
second Internet Protocol address.

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9. A method of optimizing point-to-point sessions comprising:

receiving a registration request from a mobile node, the mobile node communicating with a current packet controller function serviced by a packet data serving node;

determining whether the mobile node is serviced by a mobile Internet Protocol;

determining whether the mobile node communicated with a previous packet controller function serviced by the packet data serving node; and

deciding whether to negotiate a point-to-point session for the mobile node in response to the determinations.

10. The method of Claim 9, wherein the registration request comprises a request for service at the packet data serving node.

11. The method of Claim 9, wherein deciding whether to negotiate the point-to-point session for the mobile node comprises:

negotiating the point-to-point session if the mobile node did not communicate with a previous packet controller function serviced by the packet data serving node; and

updating the point-to-point session if the mobile node communicated with a previous packet controller function serviced by the packet data serving node.

12. The method of Claim 9, wherein deciding whether to negotiate the point-to-point session for the mobile node comprises:

determining whether there is a session context for the mobile node;

negotiating the point-to-point session if there is no session context; and

updating the point-to-point session if there is session context.

13. The method of Claim 9, further comprising generating a table comprising an entry associated with the mobile node, the entry comprising a mobile node identifier, a previous access network identifier, and a current access network identifier.

14. The method of claim 13, further comprising updating a tunnel connection operable to communicate a plurality of data packets between the current packet controller function and the packet data serving node by updating the entry associated with the mobile node.

15. The method of Claim 9, further comprising:

determining that the mobile node is serviced by a
simple Internet Protocol;

5 determining whether a first Internet Protocol
address associated with the mobile node is substantially
similar to a second Internet Protocol address, the first
Internet Protocol address associated with a message
received from the mobile node, the second Internet
Protocol address stored at the packet data serving node;

10 negotiating the point-to-point session, if the first
Internet Protocol address is not substantially similar to
the second Internet Protocol address; and

15 updating the point-to-point session, if the first
Internet Protocol address is substantially similar to the
second Internet Protocol address.

16. A system for optimizing point-to-point sessions comprising:

at least one packet data serving node operable to:

5 receive a registration request from a mobile node, the mobile node communicating with a current packet controller function serviced by the packet data serving node;

10 determine whether the registration request comprises a previous access network identifier identifying a previous packet controller function;

determine whether the mobile node is serviced by a mobile Internet Protocol;

15 determine whether the mobile node communicated with a previous packet controller function serviced by the packet data serving node; and

decide whether to negotiate a point-to-point session for the mobile node in response to the determinations; and

20 a plurality of packet controller functions communicating with the at least one packet data serving node.

25 17. The system of Claim 16, wherein the registration request comprises a request for service from the at least one packet data serving node.

18. The system of Claim 16, wherein the at least one packet data serving node is further operable to decide whether to negotiate the point-to-point session for the mobile node by:

5 negotiating the point-to-point session if the mobile node did not communicate with a previous packet controller function serviced by the packet data serving node; and

10 updating the point-to-point session if the mobile node communicated with a previous packet controller function serviced by the packet data serving node.

19. The system of Claim 16, wherein the at least one packet data serving node is further operable to decide whether to negotiate the point-to-point session for the mobile node by:

determining whether there is a session context for the mobile node;

20 negotiating the point-to-point session if the mobile node did not communicate with a previous packet controller function serviced by the packet data serving node; and

25 updating the point-to-point session if the mobile node communicated with a previous packet controller function serviced by the packet data serving node.

20. The system of Claim 16, wherein the at least one packet data serving node is further operable to:

determine that the registration request comprises the previous access network identifier;

5 identify the previous packet controller function from the previous access network identifier;

determine whether the previous packet controller function is serviced by the packet data serving node;

10 negotiating the point-to-point session if the previous packet controller function is not serviced by the packet data serving node; and

updating the point-to-point session if the previous packet controller function is serviced by the packet data serving node.

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21. The system of Claim 16, wherein the at least one packet data serving node is further operable to generate a table comprising an entry associated with the mobile node, the entry comprising a mobile node identifier, a previous access network identifier, and a current access network identifier.

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22. The system of Claim 21, wherein the at least one packet data serving node is further operable to update a tunnel connection operable to communicate a plurality of data packets between the current packet controller function and the packet data serving node by updating the entry associated with the mobile node.

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23. The system of Claim 16, wherein the at least one packet data serving node is further operable to:

determine that the mobile node is serviced by a simple Internet Protocol;

5 determine whether a first Internet Protocol address associated with the mobile node is substantially similar to a second Internet Protocol address associated with the mobile node, the first Internet Protocol address associated with a message received from the mobile node,
10 the second Internet Protocol address stored at the packet data serving node;

negotiate the point-to-point session, if the first Internet Protocol address is not substantially similar to the second Internet Protocol address; and

15 update the point-to-point session, if the first Internet Protocol address is substantially similar to the second Internet Protocol address.

24. The system of Claim 16, wherein at least one of
20 the packet controller functions is operable to:

communicate with the at least one packet data serving node; and

store an access network identifier identifying the at least one packet controller function.

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25. The system of claim 16, wherein the at least one packet data serving node is further operable to establish a tunnel connection to communicate between the at least one packet controller function and the at least
30 one packet data serving node.

26. A packet data serving node for optimizing point-to-point sessions comprising:

a memory operable to store a table, the table comprising an entry corresponding to a mobile node, the entry comprising:

a mobile station identifier field operable to store a mobile station identifier; and

a previous access network identifier field operable to store a previous access network identifier;

a processor coupled to the memory and operable to: receive a registration request from the mobile node;

determine whether the registration request comprises a previous access network identifier identifying a previous packet controller function;

determine whether the mobile node is serviced by a mobile Internet Protocol;

determine whether the mobile node communicated with a previous packet controller function serviced by the packet data serving node; and

decide whether to negotiate a point-to-point session for the mobile node in response to the determinations.

27. The packet data serving node of Claim 26, wherein the registration request comprises a request for service from the packet data serving node.

28. The packet data serving node of Claim 26,
wherein the processor is further operable to:

negotiate the point-to-point session if the mobile
node did not communicate with a previous packet
5 controller function serviced by the packet data serving
node; and

updating the point-to-point session if the mobile
node communicated with a previous packet controller
function serviced by the packet data serving node.

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29. The packet data serving node of Claim 26,
wherein the processor is further operable to:

determine whether there is a session context for the
mobile node;

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negotiate the point-to-point session if there is no
session context; and

updating the point-to-point session if there is
session context.

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30. The packet data serving node of Claim 26,
wherein the processor is further operable to:

determine that the registration request comprises
the previous access network identifier;

5 identify the previous packet controller function;

determine whether the previous packet controller
function is serviced by the packet data serving node;

negotiate the point-to-point session if the previous
packet controller function is not serviced by the packet
10 data serving node; and

update the point-to-point session if the previous
packet controller function is serviced by the packet data
serving node.

15 31. The packet data serving node of Claim 26,
wherein the processor is further operable to:

identify the mobile station identifier in the
registration request; and

20 retrieve the entry corresponding to the mobile
station identifier from the table.

32. The packet data serving node of Claim 31, wherein the processor is further operable to:

determine that the mobile node is serviced by a simple Internet Protocol;

5 determine whether a first Internet Protocol address associated with the mobile node is substantially similar to a second Internet Protocol address associated with the mobile node, the first Internet Protocol address associated with a message received from the mobile node,
10 the second Internet Protocol address stored in the table;

negotiate the point-to-point session, if the first Internet Protocol address is not substantially similar to the second Internet Protocol address; and

15 update the point-to-point session, if the first Internet Protocol address is substantially similar to the second Internet Protocol address.

33. Logic for optimization of point-to-point sessions, the logic embodied in a computer-readable medium and operable to:

5 receive a registration request from a mobile node;
determine whether the registration request comprises a previous access network identifier identifying a previous packet controller function;

determine whether the mobile node is serviced by a mobile Internet Protocol;

10 determine whether the mobile node communicated with a previous packet controller function serviced by the packet data serving node; and

decide whether to negotiate a point-to-point session for the mobile node in response to the determinations.

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34. The logic of Claim 33, wherein the logic is operable to decide whether to negotiate a point-to-point session for the mobile node by:

20 negotiating the point-to-point session if the mobile node did not communicate with a previous packet controller function serviced by the packet data serving node; and

25 updating the point-to-point session if the mobile node communicated with a previous packet controller function serviced by the packet data serving node.

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35. The logic of Claim 33, wherein the logic is operable to decide whether to negotiate a point-to-point session for the mobile node by:

5 determining whether there is a session context for the mobile node;

negotiating the point-to-point session if there is no session context; and

10 updating the point-to-point session if there is session context.

36. The logic of Claim 33, further operable to:

determine that the registration request comprises the previous access network identifier;

15 identify the previous packet controller function from the previous access network identifier;

determine whether the previous packet controller function is serviced by the packet data serving node;

20 negotiate the point-to-point session if the previous packet controller function is not serviced by the packet data serving node; and

update the point-to-point session if the previous packet controller function is serviced by the packet data serving node.

25 37. The logic of Claim 33, further operable to generate a table comprising an entry associated with the mobile node, the entry comprising a mobile node identifier, a previous access network identifier, and a current access network identifier.

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38. The logic of claim 37, further operable to
update a tunnel connection operable to communicate a
plurality of data packets between the current packet
controller function and the packet data serving node by
5 updating the entry associated with the mobile node.

39. The logic of Claim 33, further operable to:
determine that the mobile node is serviced by a
simple Internet Protocol;
10 determine whether a first Internet Protocol address
associated with the mobile node is substantially similar
to a second Internet Protocol address associated with the
mobile node, the first Internet Protocol address
associated with a message received from the mobile node,
15 the second Internet Protocol address stored at a packet
data serving node;
negotiate the point-to-point session, if the first
Internet Protocol address is not substantially similar to
the second Internet Protocol address; and
20 update the point-to-point session, if the first
Internet Protocol address is substantially similar to the
second Internet Protocol address.

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40. A system for optimizing point-to-point sessions comprising:

5 a means for receiving a registration request from a mobile node, the mobile node communicating with a current packet controller function serviced by a packet data serving node;

10 a means for determining whether the registration request comprises a previous access network identifier identifying a previous packet controller function;

a means for determining whether the mobile node is serviced by a mobile Internet Protocol;

15 a means for determining whether the mobile node communicated with a previous packet controller function serviced by the packet data serving node; and

a means for deciding whether to negotiate a point-to-point session for the mobile node in response to the determinations.

41. A method of optimizing point-to-point sessions comprising:

receiving a registration request from a mobile node,
the registration request comprising a request for
5 service;

determining whether the registration request
comprises a previous access network identifier
identifying a previous packet controller function;

determining whether the mobile node is serviced by a
10 mobile Internet Protocol;

determining whether the mobile node communicated
with a previous packet controller function serviced by
the packet data serving node; and

deciding whether to negotiate a point-to-point
15 session for the mobile node in response to the
determinations by:

negotiating the point-to-point session if the
mobile node did not communicate through the previous
packet controller function serviced by the packet data
20 serving node; and

updating the point-to-point session if the
mobile node did communicate through the previous packet
controller function serviced by the packet data serving
node.